REMARKS

ON

Ocean Steam Navigation.

BY ROBERT B. FORBES.

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OCEAN STEAM NAVIGATION.

The terrible fate of the Arctic and the loss of so many valuable lives, is a theme about which too much cannot be said at this juncture, while the public heart is bleeding.

This calamity must be discussed in all its bearings, and in doing this, something must necessarily be said which will inflict pain; but the wounds must be probed in order to ascertain their depth, and in order to suggest the means to guard against similar accidents.

I shall endeavor to discuss the subject with a practical eye, and as I have no prejudices to overcome and no interests of a private nature to serve, I hope that what I shall say will be considered as impartial, and as emanating solely from a desire to contribute my mite to the preservation of human life and the mitigation of the sorrows of the sea.

I have had some experience in the dangers of the sea, and whether deserving the title or not, I am considered an "expert" in maritime affairs, and am expected on this occasion to say something. After the loss of the Amazon by fire, early in the year 1852, or late in 1851, I addressed a letter to the *Boston Daily Advertiser*, dated 10th February, 1852, which was published, and also extensively forwarded by circular to all those who had any interest in steam navigation and packet ships. The letter was no doubt extensively read and soon forgotten. This does not deter me from publishing anew the material portions which have a bearing upon the recent calamity:

"I have made several passages to and from England, and to and from China, and have had the good fortune to go and come in fine ships, well commanded and well manned, and in nearly all cases (certainly all on this side of the Isthmus of Suez) I have found the organization nearly perfect as regards the *ordinary* routine of duty, both in the duties of captain, officers, engineers, and stewards; but I must

say that in all my travels by sea in steamers, *I have not sailed in one*, where I consider the organization *complete* for cases of sudden alarm, by collision, grounding, or fire. While I entertain a personal regard for every captain, and with one or two exceptions, for all the officers I have had occasion to travel with, and while I accord to them full credit for the qualities which constitute good seamen and gentlemen, I feel that I should not be doing the subject justice, did I not point out in plain terms wherein the custom, or habit, of the service has led them to neglect to prepare their boats and crews by stationing them and by occasionally exercising them, so that on a sudden alarm, real, or only for the purpose of exercise, the men would, at a given signal, instantly proceed to their stations, and be prepared for any emergency. The ordinary routine of a steamer may be neglected without serious accident, the watches may be relieved a few minutes too late, or too early, and in the event of a want of order in the daily duty, no very serious consequences would *necessarily* arise, but in a sudden alarm, it is absolutely vital to have *organization*, *discipline*, to insure any approach to concert of action; what would become of the crew of a ship of war, consisting of several hundred men without discipline in cases of emergency, and particularly in case of fire, that element most to be dreaded at sea?

In case of any such alarm, the crew is usually called to 'quarters,' that is to say, every man goes to his place at the call of the bugle, or the roll of the drum.

In every well regulated steamer, every man should have a station for sudden emergencies, and he should be reminded by sounding the signal (after due notice to the passengers) occasionally, so as to make him familiar with his place.

In several steamers I have sailed in, I have seen a 'quarter bill' posted up, where all hands, as well as the passengers, could see it, and in it the places of the men were designated, and particularly for the usual and ordinary duties of the ship. I have seen the crews of several ships mustered on Sunday, and examined as to their names, cleanliness, &c., but in all my experience I have never heard of a merchant steamer's crew being mustered for stations for fire, collision, or on a general alarm. * * * * * * * * * * *

The organization should not only be complete as to the stations of the officers and crew, but the stewards and servants should have certain specific duties to perform, and there should *always* be some small casks of water, some canisters of provisions and other necessaries placed in some convenient locality, ready for such emergencies."

The general suggestions contained in this letter cannot be too often repeated. I would remark, in addition to what is therein said, that it is of paramount importance, in order to carry out a plan of organization, to have more petty officers, more trusty and well-tried seamen. These can only be secured in our Atlantic steamers by giving extraordinary encouragement to good men to remain by the ship. The excuses now are, and I regret to say that in American steamers and packet ships they are valid to a certain degree, that "we cannot get men in these short voyages that will stay by us. We leave New York oftentimes with firemen and seamen whom we have never before seen, and whose names we do not know, and they scarcely know under what names they have shipped. By the time we get fairly to sea, and begin to think of getting matters into ship-shape order, we find ourselves on the other side. In fact, all our time and all our energy is expended in taking in and making sail, steering the ship, keeping a good look-out, cleaning ship, and the usual duties of the sea. We have no time to drill green hands, or seamen

who are strangers to us, in matters relating to boats; we do not expect to run anybody down, and we really cannot undertake to neglect the daily routine of ship's duty for the purpose of drilling strangers for emergencies which may never happen."

Another tells me that "Congress is at fault. The disasters of the sea are in a great degree attributable to the absence of power to enforce prompt obedience to the *ordinary* duties of the ship, to say nothing of the *extraordinary* duties devolving on us in cases of great emergency."

There is much in these excuses; they are not unreasonable; our legislators have deprived the masters of the power to enforce discipline, and the public expects from the commander in times of emergency the greatest self-possession and coolness. The public demands that the steamship, aye, and the sailing packet, shall make the quickest possible run, deliver her living or inanimate freight in the best order ahead of all competitors, and this must be done by a physical power only brought together for the first time a week since, and wholly dependent on moral suasion for its government. With such elements as we have to deal with, I submit that this is asking too much. But let me not dwell too long on the existing evils. I must come to the remedies and other matters. It is sufficient to say in regard to the speed of steamships in thick weather, that the public voice insists on speed, and I am ready to sustain this verdict for several reasons. At a high rate of speed the time of danger and the chances of collision and of damage by gales of wind are lessened; and last, not least, the danger to the steamship and her crowd of passengers, in case of meeting an obstruction, is not so great as at a slow pace, and besides this, she can be more readily controlled by the helm, and more distinctly heard by sailing ships. These are among the principal reasons for going at full speed in fogs, when the wind is usually moderate.

Much blame was attributed to the Europa for going at full speed when she ran down the Charles Bartlett, in 1849 — for my part, I think our speed saved us who were on board; had the ship struck us where the Arctic was struck, the Europa would most probably have been where the Arctic now is, at the bottom of the sea, and there would have been very few from either ship to tell the tale! Much blame is attributed to Capt. Luce for doing exactly what the *proprietors* of all the Atlantic steamers try to do, and boast of when done: namely, to make the shortest passage, to beat all competitors. If it is really criminal to run in fogs across the banks, the proprietors of steamers should be punished first, the law-makers next, and the government (for insisting that the mails shall be carried quickly,) must not be forgotten, the poor captain who stands shivering on the bridge or the paddle-box for many days and many nights, trembling for the safety of his passengers, and endeavoring to please their every whim, should be the last to be punished for going fast, even if it were more dangerous than to go slow.

I say, then, "go ahead" when you know where you are, and sound frequently when you do not. Sometimes fogs prevail for days at a time, and in certain locations, where there is the most danger of coming in collision, even for weeks; suppose the Atlantic steamers and packet ships should by common consent or by force of law, determine that five or six knots must be the limit

of speed in foggy weather, and that bells must be rung, and whistles blown, and guns fired! What a splendid accumulation of dangers would be present! To my mind the dangers of the sea would be vastly increased. The Captains would not stand it long, and the way they would get over the difficulty would be by making the knots of double length and then go ahead.

But there are certainly some things to be done, and as I am not disposed to find fault without suggesting remedies, I will now undertake to do this.

A certain number of picked men should be kept in the steamship, at whatever cost, and they should be sufficient in number to steer the ship, to keep the look-out, and to have charge under the mates of the boats, pump, gear and life saving apparatus. Each boat should have a regular crew, each man to know his place in the boat, each boat should have a set of oars and some spare oars, and be in all respects a *life boat*, and she should be provided with a mast and sail, compass and lantern, water breaker, and hand port fire, and in some convenient and well known locality a supply of stores should be placed, marked and kept ready for each boat. It is not necessary to provide roast turkey and plum pudding, nor chronometer and theodolites, but a small supply of imperishable provisions in cannisters, ready for emergencies. While on the subject of boats I must speak at length of the means of lowering them, and of the best kind of boats.

In the *English Nautical Magazine* for July, 1854, will be found a sketch and description of a very good *auxiliary* boat for steamers and sailing ships carrying large numbers of passengers. They are termed "collapsing boats," and were invented, perfected and patented by the Rev. E. L. Berthon, M. A., of Fareham, England. The *Nautical Magazine* says they have received the unqualified approbation of the best-informed officers of the royal and merchant navies, and adds:

"As life-boats, these new and really beautiful structures are second to none in an essential quality: they are perfectly insubmergible, handy, lively, and surpassingly fast under sail, and more weatherly than any other description of boat; at the same time their collapsibility is so great that a boat ten feet wide, when closed, may be stowed in a space only eighteen inches in width. When required, their expansion is instantaneously effected by the weight only. Their enormous extra buoyancy and insubmergibility are obtained by a vast volume of air contained in many separate air cells or compartments, which inflate themselves in the act of opening. Should an accident happen to any part of the boat, it involves the destruction, at the worst, of that compartment only upon which the injury was inflicted, while the others remaining intact are more than enough to keep the boat lively."

This boat, although costly, will be found very effective on account of the small space it occupies.

The Francis Metallic Boat is well known and extensively used; it is a very durable and very useful boat for ships, but is not so effective as it would be if the end chambers were furred off from the boat herself and entirely distinct from the same, as in case of making a hole in or staving the end, the boat as now constructed is next to useless. This improvement should be insisted on, although

the cost will be slightly increased as well as the weight, and the strength of the ends will be slightly diminished; but this can easily be compensated for by additional strengthening pieces.

Another very valuable metal boat is built in New York. This boat I should imagine to be fully equal in strength to Francis's Boat, and with the improvement suggested for that boat, namely, having her end and side chambers detached from the shell, but securely lashed to the gunwale and thwarts, I should give her the preference, for the reason that she is rather lighter and has the very great advantage of more internal buoyancy, inasmuch as she has the inside chambers as well as end chambers, and delivering valves by which any large quantity of water coming suddenly into her would very soon run out.

The Staunton Life Boat consists of any light pink stern boat, supplied with floats of large capacity, at each end inside, and long cylinder floats lashed to strong battens outside, just below the gunwale, and to these may be added other floats under the thwarts. These floats should be made of stout vulcanized India rubber cotton canvas, made in the most approved manner. They are inflated by bellows in a few minutes, but may be inflated by the mouth in case of accident to the bellows.

The Staunton boat cannot easily be stove alongside a ship, not so easily as a boat without the floats, and cannot well be capsized in lowering, or by the sudden clinging to her gunwale of struggling persons, and if stove, she can still support many persons. This is a good life boat, inasmuch as the floats applied to any ordinary boat make her a life boat. The Massachusetts Humane Society have more than thirty of these boats on the coast of Massachusetts, and when used by experienced beachmen they have been found most useful in saving life. They are open to the same objections that apply to nearly all boats — they will suffer much by neglect and stupidity, and must wear out faster than metallic boats if neglected. But there is one very important consideration in them, and that is, if the floats hold wind, or remain inflated, you know you can trust them until they become ruptured; and in case of staving the end of your boat, you can remove the float, stop the hole at once, if not too large, and by replacing the float make all right; whereas the metal cannister may have a hole in it which cannot be known by the collapsing of the same, as in the case of India rubber floats. On the whole, I prefer the light lap-streak cedar boat, fitted after the Staunton plan, to any ordinary life boat But every steamer in the Atlantic trade should have at least two large life boats thirty-two feet long and about eight feet beam, lined with cork and fitted with life-lines, india-rubber buckets for bailing, compass, port fires, water breakers, and other apparatus. Besides, at least six life boats, capable of carrying at least forty persons all large ocean steamers ought to be provided with half a dozen vulcanized india-rubber *pontoons*, say twenty to twenty-five feet long, and from eighteen inches to two feet in diameter. These pontoons, when collapsed and stowed away, would not occupy together more space than a small boat, and could always be kept in chests on deck, ready to be inflated and formed into rafts, or be attached by lines passing under the boats, so that for an emergency like that of the Arctic, the boats could be increased in capacity, so as to *sustain*, if not accommodate, an hundred more

passengers; these pontoons may be made of any required size, and would vastly increase the chances of saving lives. A very valuable auxiliary boat, or scow, has been invented by Mr. Tewksbury, of Boston. Several of these floats, or boats, may be carried by a steamer in a very small space, as they are perfectly flat when the sides and ends are not put in place; suppose the bottom to be made of double inch boards, with lap joints, made tight by caulking, or by inserting thin India rubber cloth between the boards; the bottom to be twenty feet long by six feet wide; the sides say two feet high, hinged, or attached to the bottom by strong India rubber canvas; the ends of similar height and hinged in the same way; the corners to be gores, or segments of circles of same material, so that when the ends and sides are not fastened in place, the whole may lay flat on the deck, and when "rigged" the ends and sides assume the shape of an old-fashioned chopping tray. This arrangement makes a very light, tight, and strong boat, float, or scow, that would contain at least twenty persons, and very safe for *smooth water*. It would not answer for a surf boat, nor for heavy seas, not so well as a fine modelled life boat, but it would be a most valuable and simple auxiliary float for disasters similar to that of the Arctic.

As to other means for the better preservation of life, there are many floats styled life preservers. Very few of these contrivances are of much value to persons who are panic stricken. The India rubber floats are often cheaply made, and their fastenings and valves are generally sadly defective, and as they are seldom proved on board ship, by inflating them, the hapless passengers oftentimes find them wanting in strength and buoyancy when the crisis comes. Metal cannisters of various forms have been recently got up in order to meet the requirements of the Act of Congress. The most valuable of these floats is the invention of a Mr. Fitch, and is made by W. O. Haskell, Boston. Having tried it in the water, I speak understandingly when I say that it is next to impossible for a person to drown in tolerably smooth water with one of these fixtures properly applied. The Tewksbury seats are also valuable, particularly when two or more are lashed together; singly, they are something like Columbus's egg, which was easily made to stand on its end when the process was understood. In regard to these stools, I have seen a strong seamen nearly exhaust himself by attempting to get his body balanced upon it, while I am confident that I could sustain myself for hours with one of them in a smooth sea and without exertion, provided the temperature of the elements was not too low. But the best of all these floats which I have seen, is an invention of a New York engineer, Mr. Thompson, which consists of a comfortable chair, which, when opened or expanded, makes a most desirable life preserver. This seat should be put on board of all steamers and passenger ships, particulaly on rivers and other narrow waters. It is more expensive than any of the life preserver seats, but this should not prevent its general adoption.

The Cartes Life Preserver is an English invention, and is a most valuable one; it consists of a circle or ring of cork shavings, covered by painted canvas large enough to go round the body under the arms, and having sufficient buoyancy to support a full sized person. The great merit of this float consists in its simplicity and in its being always ready, that is to say, always buoyant,

and requiring no inflating ; this quality is shared by the metal floats, but you are never quite sure that they are perfectly water tight.

All these body floats require fastening to the body, and are often entirely useless on account of the want of a little coolness or tact in adjusting them. Whatever body floats are used, every state-room should be supplied with drawings of them, and full directions for their use — true, the agony of life may be prolonged only for an hour, or less, and life *cannot be insured* by any life preserver ; but in a case like the Arctic, many might have been saved, especially if the boats had been in sufficient number hovering about when the ship finally sank. While on the subject of floats and life preservers, I would strongly recommend that every state-room door on board of steamships and river and lake boats, or others carry large numbers of passengers, should be hung on "pintles and gudgeons," and have for a centre panel a metal box, three or four feet long by one or two feet wide, and about two inches thick, so that, in the event of a sudden fire, like that on board the Ocean Monarch, or the river boat Henry Clay, and the lake boat Atlantic, lost on Lake Erie, or in the case of the Arctic, they would serve temporarily to prolong life until assistance could be rendered. Many, many lives have been lost, in my short day, for want of means to support life for an hour or less.

Various methods are in use for safely and quickly lowering boats. The most simple one is to have a strong pendant at each end of the boat, which, by passing over a cleat on the davits, sustains the boat when once hoisted up by the tackles, which are then unhooked. When the boat is to be lowered, it is done by the pendants, which may be both suddenly let go, releasing the boat from the ship, or the after one may be let go and the forward one may be used as a painter. These pendants must be long enough to permit the boat to reach the water, and strong enough to sustain her. The usual difficulty is in clearing boats from the tackles simultaneously, and it often happens that the bow tackle is unhooked, and the stern tackle fouled by the boat swinging round. Another method of detaching a boat, in use in England, is by having a rod running along the boat under the thwarts, to part of which the tackles hook ; now, by turning a handle or lever at the centre and above the thwarts, the tackles are simultaneously unhooked or cleared. This must necessarily be done by a man stationed at the lever. This method of detaching boats can only be fully explained by drawings.

Having said enough on the subject of floats and what are called "Life Preservers," I come now to speak of other means tending to avoid collisions on the ocean during foggy weather and dark nights. There is a great diversity of opinion among nautical men of experience as to the propriety of making night hideous to the passengers by sounding the bell, blowing horns, firing guns and shrieking through the steam whistle ; some contend that perfect silence is the best thing for *self*, and there is no reason why self should not be cared for first in this particular ; for my part, I think that the steam whistle, systematically and regularly blown during fogs and thick dark nights, is the safest and best thing ; but in order to make it effective in ocean steamers, there should be a rule that one blast at intervals of five or ten minutes should denote a westerly course, two blasts an easterly course, and three blasts a

southerly, and four a northerly course. This would be simple enough for Atlantic navigation, as Atlantic steamers in given localities are not beating about on diverse courses, like sailing ships. If the whistle could be conveniently contrived so as to blow its blast directly ahead, it would be better than to do so upwards, as is usual. I cannot imagine any serious objection to this plan, though it would unquestionably be a discomfort to nervous passengers, but it would assure them that the ship was giving warning to approaching ships; sounding a bell, unless it be of very large dimensions, would be comparatively useless, there being nothing so penetrating as the steam whistle.

There are so many steamers now crossing the Atlantic, going out and coming back *by the same track*, that the danger of collisions is much increased, though still very small indeed. To avoid this particular danger in some degree, I suggest that a rule be adopted for outward steamers habitually to keep a little more to the North or to the South, than homeward bound steamers after passing Cape Race. If a rule should be established to this effect by the regular lines, the chances of collision would be still smaller, and the sailing ship, knowing her latitude, would generally be aware when she heard the steamer's paddles or her whistle in a fog, which way she was heading, not only by the number of blasts, but by the position or place of the ship; a few minutes or hours in the length of the passage would be of no consequence in comparison with the confidence which would be the result of these or similar precautions.*

A port fire or blue light burned at stated periods in thick weather, finds some advocates, but it has serious disadvantages; it cannot be seen far in a fog, and it cannot denote the course of the ship, while it blinds the men on the lookout on board of the ship, and it would cost more than a little waste of steam. The steam whistle, then, I consider the true thing to warn an approaching ship; but, after all, the sound of a large steamer's paddles, when going rapidly, is the best warning to sailing ships and propellers, though this noise is not usually heard far from another paddle wheel steamer, nor by sailing vessels except in moderate weather.

One great cause of loss of life on the occasion of the loss of the steamer Atlantic on Lake Erie, and in the case of the Arctic, was, no doubt, the prevailing idea that sinking ships go down suddenly, creating a whirlpool or vortex. A sinking ship is, thank Heaven, not a usual sight, but it is not altogether a novelty with me, for I have been on board of one that capsized and sunk in a few minutes; and I have seen another sink under the bows of the Europa, and I am not a believer in jumping into real danger, in order to avoid an imaginary one! Ships go down more or less suddenly, no doubt, and there is in some cases a tendency to draw down to a certain extent all those who may be on the deck, but not to an extent greater than would be the case by jumping from the ship's rail, in which process any ordinary "life preserver" is likely to be damaged by breaking its fastenings.

I ought to have alluded to the common objection to most "life preservers," namely, that they are apt to be out of order, that they are made of perishable materials, and cannot be trusted. These objections apply with equal force to

* Cape Race should have a wide berth, say one hundred miles or so, as recommended by Mr. T. B. Curtis.

most of the ship's fittings; the sails rot in the gaskets, and the ropes become weakened by exposure to the weather, and they often fail when most needed; the rudder pintles sometimes give out, and the masts and steering gear often fail; yet we cannot dispense with sails and ropes, and with masts, and rudder, and steering gear, for the reason that they are subject to accidents.

Life preservers and boats, floats and steam whistles, are subject to derangements, and cannot be expected to take care of themselves.

This is a good occasion to illustrate the value of a good lookout from aloft several times a day, on board of all vessels at sea. There is no knowing how many despairing souls might have been saved, as was Captain Luce, by a good lookout from aloft, if every shipmaster should send a man aloft several times a day, to look for wrecks, particularly in the stormy Atlantic.

I have now treated of the means generally and obviously useful for saving life in cases of sudden wreck, and I come now to make some suggestions as to more extensive means for this great end in steamships. All steamers, whether of wood or of iron, should have a practically water-tight bulkhead before the engine-room, and another abaft the same, so that any serious fracture at either end would enable the engines still to work, and keep the small leaks under. True, the bulkhead cannot be always perfectly tight, but we must not give them up for this reason, any more than we should give up ships because they sometimes leak.

The saloon deck of steamers, generally sixty or eighty feet long, may be so built and fastened to the standing part or sides as to be detached at short notice, and form a valuable raft, especially if spars, pontoons and life-lines and railings are so prepared as to meet the exigency. A short time ago the idea of constructing a steamer so as to sink with comparative safety to her passengers, would have been met with ridicule; but we now realize from the sad experience of the Arctic, that good ships can sink, and that many lives can be lost by sudden accidents for want of precautions in their original construction. Besides the saloon deck and the bulkheads, it would be a good plan in the constructing sea steamers, to have all hatches, doors in bulkheads and other apertures, so contrived that they can be closely fastened; firstly, to exclude air in cases of fire, and next, to keep in the air when the ship is, by an accident like that to the Arctic, gradually sinking. I do not hesitate to say that had the engines of the Arctic been stopped as soon as the probability of sinking was imminent, and all the ports, deadlights and hatches securely caulked and fastened down, the ship would have filled much less rapidly; it is not necessary that the apertures should be entirely air-tight, nor that the bulkheads should be perfectly water tight in order to *stop the vent*. As fire on board ship is not uncommon, we all resort in such a case to *excluding the air*, and I see no valid reason why we should not *keep the air in* when the leaks get the better of the pumps. I have another suggestion to make in regard to the machinery of steamers.

I assume that the boilers of the Arctic contained each 3900 cubic feet, which at 35 cubic feet of sea water to a ton, gives 111 tons, from which deducting 40 tons for water in the tubes and furnaces, (supposing the ship to be so far full of water) leaves 71 tons of buoyancy, or floating power, and there

being four boilers, it follows that the floating power of the boilers is 284 tons. But the boilers being three quarters full of water, this buoyancy was of no great use in sustaining the sinking ship. How could this water have been excluded from the boilers, supposing the water in the ship to have been about six feet above the bottom of the boilers, and the water line in the boilers four feet higher, or ten feet above the bottom of the boilers? By stopping the engines soon after the accident, arresting the escape of steam, and opening all the blow-off cocks, the steam in the boilers could have been made subservient in ejecting the water from them, but as soon as the internal level of the hot water had got to be a little below the level of the cold water in the ship's hold, the steam remaining would have rapidly condensed, and a complete vacuum would have been formed in the boilers; now, unless the blow-off cocks had been shut at this moment, the water would, of course, rush in and re-fill them to their *entire capacity* But if the cocks had been shut at the proper time, the water in the boilers would be reduced from 10 to 6 feet, making a gain of say 70 tons in the four boilers; but the space in them not occupied by water, being a perfect vacuum, the pressure of the atmosphere might have *collapsed* them.

If, on the other hand, the engines had been stopped when the water in the ship reached the bottom of the boilers, and the fires been drawn, the internal pressure might have been used to eject every drop of the water, and in that case, *if an air-pipe could have been used to let in the air from the deck or the engine-room*, and so fill the boilers with air, the moment that the water in the hold had got high enough to cause the remaining steam to condense, and the aforesaid vacuum to approach, why the consequence must follow (the blow-off cocks being closed at the right time) that the full floating power of the empty boilers, about 284 tons, would be exerted to make the ship sink slower, or perhaps float indefinitely, deeply immersed, particularly with all the apertures on the main and lower decks closed. In order to use this power in future steamships, it will only be necessary to have means to close the blow-off cocks from the deck, and have an air-pipe to each boiler, to be opened at pleasure.

I would remark in this connection that this general idea occurred to me, a novice in steam, at the time I first heard of the Arctic's accident, but not having confidence in my own knowledge of the subject, I consulted an eminent engineer, and now give the result nearly in his own words. It will no doubt be argued, that in a time of great danger in a sinking ship, the problem would not be solved with accuracy and good judgment; this is quite likely, but it does not afford a good argument for not providing the means to be on the safe side. I contend that if all the means of saving life and saving the ship that I suggest be adopted, the chances of confusion and panic will be much lessened.

I come now to speak of the mistakes made in the management of the Arctic at the time of the accident, or so soon thereafter as it became morally certain that the ship must sink.

In making these remarks, I would not be understood as implying blame to the gallant commander. From a personal knowledge of him I am quite sure

that he thought only of the safety of his passengers, and while I make some comments on his proceedings, I would frankly say that it is much easier, while sitting by our firesides, and after the disaster, to suggest what ought to have been done. It was a fatal mistake to run the ship when it was ascertained that the leak was rapidly gaining on the pumps. The land was forty or fifty miles distant, and every revolution of the wheels not only increased the leak, but carried the ship further from the direct track of vessels. The ship should have been arrested in her course, and all the means applied to getting the boats safely manned, all apertures should have been carefully closed, and the masts should have been cut away, as they would have done more towards forming rafts than all the spare spars. In all the accounts which I have seen, not one word is said as to any attempt to cut away the masts; perhaps no axes were at hand, and if this is true, it shows a lamentable want of precaution for an emergency liable to happen to any ship. Allowing that the officers and most of the crew had already accidentally or wilfully left the ship, it can hardly be possible that there were no passengers who could handle an axe, and the only way that I can account for the omission of this expedient is by supposing that the axes had been taken away, or that the ship was not provided with them. But the great cause of the immense loss of life was the want of due organization for such an emergency, and this cause operated to a fearful extent in consequence of the want of sufficient boats to take anything like the whole number of persons comprising the crew and passengers of the ship. If the Arctic had no more boats than the Atlantic or the Baltic, in which latter ship I once made a passage, not more than about two hundred souls could have been put into the boats with any chance of safety, even in smooth water; the boats of the Collins line are inferior in size to those of the Cunard steamers, and there are not enough of them for so large a complement as was on board the Arctic at the time of the collision.*

The running away from the boat of the first officer, although dictated by the best motives, was a fatal error, for the ship not only lost one of the best boats, but she also lost the valuable services of one of her most effective officers and of several of her crew. Capt. Luce abundantly exhibited his seamanlike and disinterested conduct by lowering this boat to assist, as he supposed, the sinking propeller.

Great allowances must be made for Capt. Luce, when we cast any imputation on his want of judgment in running the ship after he was sure that nothing could save her. Who is there with such a vast accumulation of responsibility on his mind and heart, that would have done more than he? Surrounded as he was by despairing friends looking to him for superhuman exertions, practically deserted by his men and by most of those to whom they had been accustomed to look up to for orders and control, what more could he do than to raise his voice, and by his manly example show that if he had been properly supported many might have been saved. As to the desertion of the firemen and seamen, little more need be said than that they obeyed the instinct of self-preservation. They are not usually men from whom you would expect a different course. With few exceptions, they were men without any particular attachment to the ship, or to her officers or passengers. If

* These ships have lately been provided with more boats.

they had been duly organized for such a fearful crisis, and if they had felt that the boats would contain every soul on board, there would have been put on the record of humanity many acts of disinterestedness and devotion to duty. But without discipline, *preconcerted and duly enforced discipline*, what else could have been expected of them than to rush for the boats? The few who did not do this deserve to be enrolled among the heroes; but I doubt not there were among the deserters many men who, under proper control, would have equally deserved the name!

Captain Luce is not altogether responsible for this want of order; nay, he is less so than the law makers, the public, through their representatives at Washington. Captains and mates of ships have so little support in the law that they are content if they can get from port to port by being blind and deaf to the want of subordination of seamen and firemen. As to the latter class, the captain and officers scarcely know them by name; they are generally under the orders, not to say control of the engineers, and the engineers and their assistants are not sufficiently under the control of the captain, and usually pride themselves on being almost independent of his orders, excepting as to the getting up steam, going ahead or backing astern of the ship. The chief engineer in American ships, so far as I can judge by a short experience in the latter, is not put on a footing of confidence as in British steamers, particularly those on the East India route. This is all wrong; the chief engineer should be in all respects considered as the person to whom the captain is to look in dangerous times. If this sort of confidence generally existed, the engineer's subordinates in the engine room would be more likely to do their duty faithfully, in the event of a great disaster. Firemen, seamen, servants, cooks and waiters, in short, *every man in the ship*, should have something to do, some place to go to, out of the common course, in case of an alarm. In this way, the panic so natural in time of danger would be much less, and the chances of safety to all concerned would be vastly augmented.

I understand from one of the survivors of the Arctic's officers, that she had a good set of seamen on high wages, and that they were generally sober men; men to be relied upon in time of danger from the ordinary perils of the sea. I can, if this be true, only attribute their anxiety to leave the ship to a want of confidence in the means provided for saving them. True, the law says that the seamen must stick by the ship and assist the passengers, and after seeing them safely deposited in the boats, they may sink or swim at their leisure, if there be no means to buoy them up—but what seaman, who has not served in a ship of war, under strict orders, and having a certain amount of "esprit du corps," can be expected to study the niceties of Blackstone or Story on board a sinking ship!

I *pity* the man who lost so good an opportunity of distinguishing himself, but I can scarcely *blame* him. Life in a coal stained skin and a red shirt is as dear as if clad in broadcloth and velvet.

Finally, the ceiling and timbers in the wake of a steamship's engine room should be closely fitted and made water-tight between the bulkheads. In this case a leak in the fore-hold or after-hold, or in any place forward or abaft the bulkheads, would be kept from flooding the engine room; and the pumps,

even those attached to the engine, could be worked much more effectively than when in danger of being flooded. These remarks are not made in a fault-finding or captious spirit, nor are they made by one who considers his opinions eminently orthodox; but they are submitted by one who thinks that if all who may be no more orthodox than he on marine matters, should express their views with equal candor, some desirable hints might be gathered tending to mitigate the sorrows of the sea. For Captain Luce I have a personal regard, which cannot be impaired by much greater mistakes than I have attributed to his overburthened spirit; and I may safely say that among the many emotions to which a life of some peril by sea and experience by land has necessarily subjected me, none ever came to my heart more strongly or gratefully than the simple words on a bulletin board, which I read while riding through the streets of New York a few days since —

"*Captain Luce Saved!*"

If life, under the circumstances of his great trial, is worth having, he certainly ought to have it. No man more richly deserves the *quiet* sympathy of his friends. His first thought on finding himself afloat, must have been —

"Would to God I had died for thee?"

R. B. F.

Boston, January, 1855.

NOTE.

In the foregoing remarks in regard to the means of saving life and property on the Ocean, I have omitted to mention the fire annihilator, which is a most valuable auxiliary, and should be carried in all vessels whether sailing vessels or steamers. Many a fine ship which has been lost by accidental fires or by lightning, might have been saved had a single fire annihilator been at hand.

The case of the Northern Light, Captain Winsor, is a striking illustration of the necessity for having fire annihilators on board of ships, as well as force pumps. This ship was struck by lightning and wholly lost, with a valuable cargo valued at near $300,000. The fire originated among a quantity of pails packed in straw, stowed near the fore hatch and might easily have been got under by a single annihilator.

R. B. F.

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